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1992

YOUTH RISK BEHAVIOR SURVEY RESULTS

MASSACHUSETTS DEPARTMENT OF EDUCATION
BUREAU OF STUDENT DEVELOPMENT AND HEALTH
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Massachusetts Department of Education
Bureau of Student Development and Health

January 1993

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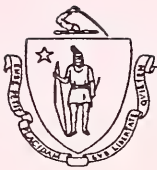
Written by:

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January 1993

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The Commonwealth of Massachusetts Department of Education

1385 Hancock Street, Quincy, Massachusetts 02169-5183

January, 1993

Dear Parents, Students and Colleagues:

We are pleased to present to you the results of the Department of Education's 1992 Youth Risk Behavior Survey of Massachusetts high school students.

This research offers the most up-to-date information about behaviors of these students which may increase their risk for a number of health problems. These include short-term problems such as AIDS/HIV infection, other sexually transmitted diseases, suicide and unintentional injuries as well as longer-term problems such as heart disease, cancer and addiction to substances.

While there are several findings to be celebrated, such as increases in the number of students who have received AIDS/HIV prevention education, who are talking to their parents about AIDS and HIV, and who are using condoms if they choose to be sexually active, we must not overlook the continued high levels of other risk behaviors such as using alcohol, tobacco and other drugs, considering or attempting suicide and carrying weapons.

We thank the many superintendents, principals and teachers who took the time to assist Department of Education staff in the administration of this survey, and particularly the nearly 2,000 high school students who provided this very detailed personal information about their behaviors.

It is our hope that school staff across the Commonwealth will reflect on these findings and use them to promote comprehensive health education and human services programs and school restructuring efforts at the local level. Staff from the Department of Education Bureau of Student Development and Health are available to assist your district in these efforts.

I wish you success in the fight to preserve the lives and health of all Massachusetts students.

Sincerely,

A handwritten signature in cursive script that reads "Robert V. Antonucci".

Robert V. Antonucci
Commissioner of Education



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MASSACHUSETTS

1992

YOUTH RISK BEHAVIOR

SURVEY RESULTS

Massachusetts Department of Education
Bureau of Student Development and Health

January 1993

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The development of this report was made possible by the assistance of many individuals and groups both outside and within the Massachusetts Department of Education. We would like to thank the numerous superintendents, principals, teachers and students across the state without whose participation the survey could not have taken place. We also extend our thanks to the Division of Adolescent and School Health of the U.S. Centers for Disease Control for their support of the AIDS/HIV Program, for their technical assistance, and for sponsoring the survey (Cooperative Agreement No. U63/CCU102852-05). Westat, Inc. also provided important technical assistance. We would also like to thank the former Acting Commissioner of Education Rhoda Schneider and the Commissioner of Public Health David Mulligan for their support of the survey; members of the Department of Education Office of Research, Planning and Evaluation for help in reviewing an earlier draft of the report; and members of the Department of Education AIDS Advisory Panel for their editorial assistance. Special thanks to Joyce Cohen for immeasurable technical and other support, and to members of the Bureau of Student Development and Health for their editorial contributions and for their assistance with survey administration, including Kevin Cranston, Jerry Davoli, Susan Farb, Linda Gerstle, Nancy Olin, Chuck Radlo, and Phyllis Scattergood. This report was produced with financial support from the U.S. Department of Education Drug Free Schools and Communities Act.

MASSACHUSETTS 1992 YOUTH RISK BEHAVIOR SURVEY EXECUTIVE SUMMARY

Sexual Behavior

- * One half of Massachusetts high school students surveyed reported having had sexual intercourse.
- * Over one third of students reported having sexual intercourse in the last 3 months.
- * Three out of ten students who have had sexual intercourse reported having had four or more sexual partners.
- * Among sexually experienced students, 58 percent reported using a condom with their partner the last time they had sexual intercourse.
- * Among sexually experienced students, 30 percent used either withdrawal or no contraceptive method the last time they had sexual intercourse.
- * Of all students responding to the survey, one in 20 students reported having been pregnant or having gotten someone pregnant one or more times.
- * Of all students, 86 percent reported having been taught about AIDS/HIV infection in school.
- * Two thirds of students reported having talked about AIDS/HIV infection with their parents or other adults in their family.

Sexual activity patterns in the 1992 data are comparable to those from a similar 1990 survey.^{*} Exceptions include levels of condom use, AIDS/HIV education, and talking with parents or other adult family members about AIDS/HIV, all of which appear to have increased between 1990 and 1992.

Alcohol, Tobacco, and Other Drug Use

- * Over one half of students reported using alcohol in the last month.
- * Over one third of students reported having five or more drinks of alcohol in a row on one or more occasions in the last month.
- * Over one quarter of all students reported having smoked regularly at some point in their lives.
- * Nearly 20 percent of students reported having tried to quit smoking in the last year.
- * One in five students reported using marijuana in the last month.
- * Two percent of students reported using cocaine in the last month.

These substance use patterns appear comparable to those found in 1990.

^{*} The 1990 survey results have been reported elsewhere; see reference 1.

Behaviors That Result in Intentional and Unintentional Injuries

- * Over one third of students reported having ridden in a car in the last 30 days with a driver who had been drinking or using drugs.
- * Over one quarter of students reported having driven a car after using alcohol or other drugs in the last month.
- * One quarter of all students reported having seriously considered suicide in the last year.
- * Six percent of students reported having attempted suicide in the last year.
- * Two fifths of students reported being in a physical fight in the last year.
- * Over 20 percent of students reported carrying a weapon of some kind in the last 30 days.
- * Nearly five percent of teenage men responding to the survey reported carrying a handgun or other gun in the last 30 days.

These levels of behavior are comparable to those found in 1990, with the exception of weapon carrying, which appears to be higher in 1992 among young men than in 1990.

Dietary Behaviors and Physical Activity

- * Over 40 percent of adolescent women surveyed thought of themselves as overweight.
- * Of adolescent women, 62 percent reported they were currently trying to lose weight.
- * Of 12th grade women surveyed, 11 percent reported using diet pills and/or making themselves vomit in order to lose or maintain weight in the last week.
- * Fewer 12th than 9th grade students reported engaging in regular physical activity.

Compared with the 1990 survey, fewer students in 1992 thought of themselves as about the right weight and more students report trying to lose weight.

Implications and Recommendations

- * In most respects the 1992 survey results correspond to the 1990 results and suggest that a high percentage of Massachusetts youth are at risk for a variety of health problems.
- * These results underscore the importance of developing and extending comprehensive health education and human services for all students and the importance of school restructuring for promoting student health, safety, and academic success.
- * The 1993 Youth Risk Behavior Survey will provide the first truly state-side representative sample of students in Massachusetts, and is scheduled for the winter and spring of 1993. Its success depends upon the participation of schools which are randomly selected.
- * The 1993 survey will provide data crucial for confirming the positive trends noted in this year's findings, for increasing confidence in the representativeness of these findings, and for exploring the degree to which comprehensive health education and restructuring are having a positive effect on reducing adolescent health risk behavior.

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I. INTRODUCTION

The Youth Risk Behavior Survey (YRBS) is conducted periodically by the Massachusetts Department of Education as part of a nation-wide effort to monitor the prevalence of youth behaviors that most influence health. Sponsored by the Division of Adolescent and School Health of the U.S. Centers for Disease Control (CDC), the YRBS focuses on six health areas related to the leading causes of morbidity, mortality, and social problems among youth and adults in the United States. These include: sexual behaviors that result in HIV infection, other sexually transmitted diseases (STD) and unintended pregnancy; alcohol and other drug use; behaviors that result in intentional and unintentional injuries; tobacco use; dietary behaviors; and physical activity.

This report contains the results of the 1992 Massachusetts Youth Risk Behavior Survey. The 1992 survey was conducted between April and June in randomly selected public high schools across the state; private and parochial schools and alternative high schools with enrollment under 100 were excluded. Of the 61 schools randomly selected, 39 (63%) agreed to participate. The sample includes schools from four of the nine largest cities in Massachusetts, but does not include schools from the two largest cities, Boston and Worcester. The sample therefore reflects medium- and smaller-sized urban areas, suburban areas and rural communities across the state.

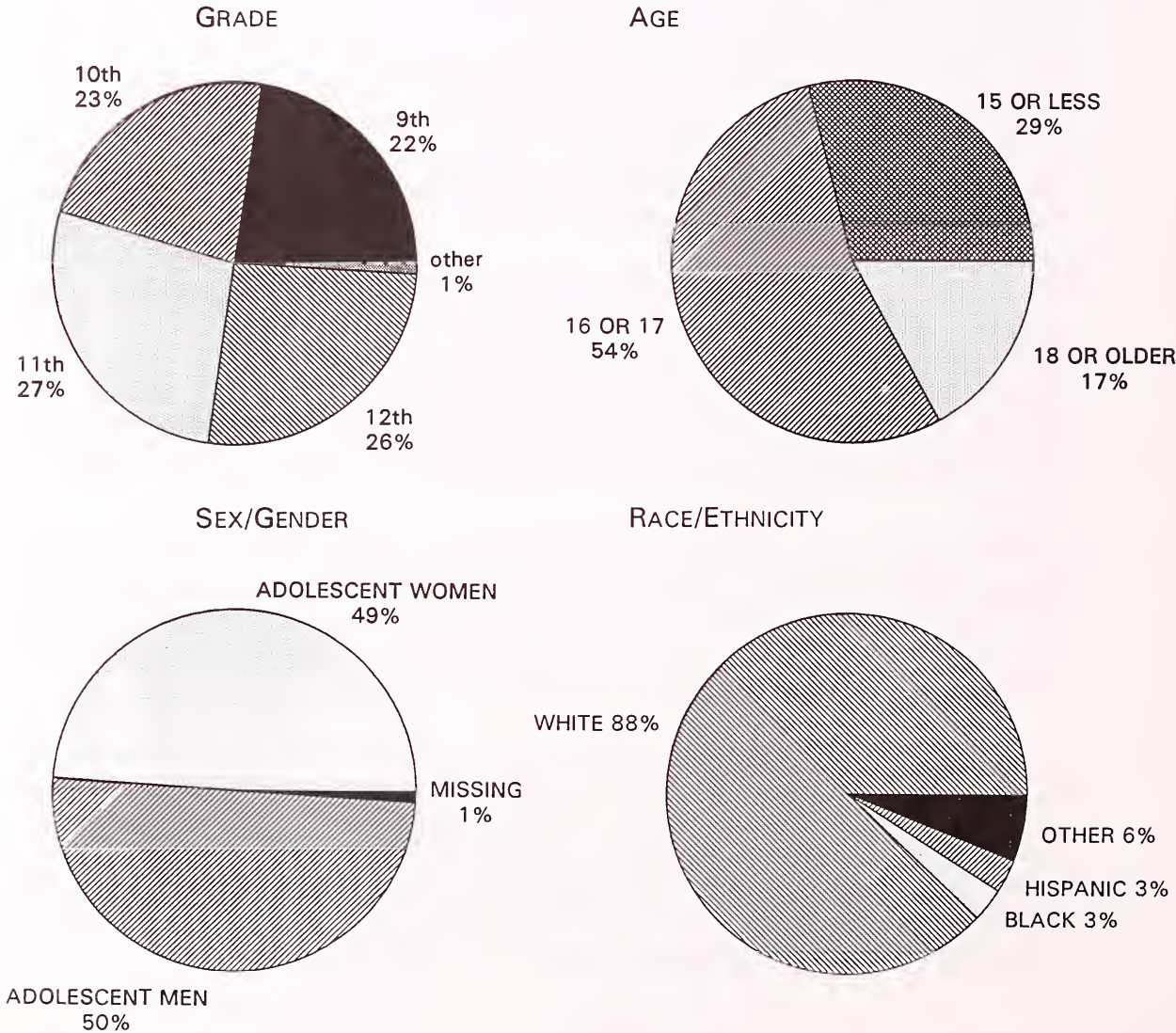
The survey instrument consisted of the 75 standard, multiple choice questions provided by the CDC. The survey was conducted by Department of Education personnel, was voluntary, anonymous and self-administered, and took approximately one class period to complete. On the scheduled survey days, 79 percent of students in selected classrooms completed the self-administered questionnaire, yielding a total of 1,970 usable questionnaires. Non-participation by students was largely the result of absenteeism.

These survey results were not weighted due to a lower than expected overall response rate. However, the striking consistency of the current findings with those from the 1990 YRBS² (the results of which *were* weighted) suggests that the 1992 findings do provide an accurate approximation of the level of adolescent health risk behaviors in the state.

Because of differing sample characteristics, statistically significant comparisons can not be drawn between the two years. However, in several behavioral areas, the large differences between the two years suggest that some change has taken place. Assessing the true magnitude of any apparent changes in behavior over time awaits the completion of the 1993 YRBS, which is scheduled to take place in the winter and spring of 1993. A more detailed description of survey procedures is provided in the Appendix.

Demographic characteristics of the sample are shown in Figure 1. The sample includes approximately equal percentages of students in each of the four grades and equal parts adolescent men and women. A large majority (88%) of respondents were white, with the remainder including Hispanic, black, and "other" students.³ Compared to the total high school population in the state, non-white groups are somewhat underrepresented in the sample (12% non-white versus 19% state-wide).³ Because of the small numbers of black, Hispanic, and "other" students in the sample, racial/ethnic comparisons are not discussed in this report. However, the results are disaggregated by grade and/or gender of student where those distinctions appear relevant to the particular behavior.

FIGURE 1: DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE, MASSACHUSETTS YRBS, 1992



II. SEXUAL BEHAVIORS THAT RESULT IN HIV INFECTION, OTHER SEXUALLY TRANSMITTED DISEASES, AND UNINTENDED PREGNANCY

Background: Major risks of early sexual activity include unwanted pregnancy and sexually transmitted diseases (STD), including HIV, as well as negative effects on social and psychological development. Number of sexual partners and age at first intercourse are associated with STD. Alcohol and drug use may serve as predisposing factors for initiation of sexual activity and unprotected sexual intercourse.⁴

More than one million teenage women in the United States become pregnant each year, just over 400,000 teenagers obtain abortions, and nearly 470,000 give birth.⁵ Teenagers account for one third of all unintended pregnancies, with 75 percent of teenage pregnancies occurring among adolescents who are not practicing contraception.⁵ Teenage mothers are more likely to have been raised in poverty, are more likely to drop out of school, less likely to find stable and remunerative employment, and are more likely to rely on public assistance.⁶ Children of teenage parents have more developmental and psychosocial problems and lower school achievement.⁶ The United States leads all other Western developed countries in rates of adolescent pregnancy, abortion, and childbearing.⁷

Acquired immunodeficiency syndrome (AIDS) is the only major disease in the United States for which mortality is increasing.⁸ AIDS is the seventh leading cause of years of potential life lost before age 65 in the United States⁹ and is the seventh leading cause of death for youth aged 15 to 29.¹⁰ Of the 12 million new cases of STD per year, 86 percent are among people aged 15 to 29.¹¹ STD may result in infertility, adverse effects on pregnancy outcome and maternal and child health, and facilitation of HIV transmission.¹² Correct and consistent use of latex condoms is associated with lower rates of HIV, gonorrhea, and other infections, pelvic inflammatory disease, and cervical cancer.¹³

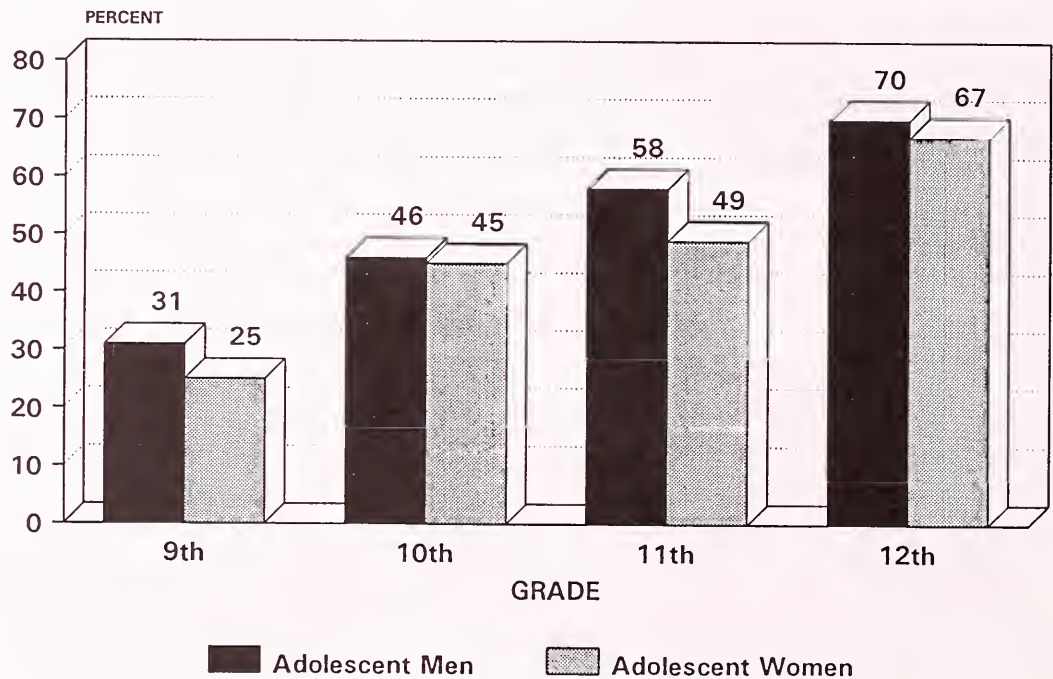
National health objectives for the year 2000 include reducing the proportion of adolescents who have ever engaged in sexual intercourse, increasing the percentage of adolescents who have abstained from sexual activity for the previous three months, reducing adolescent pregnancies, increasing the percentage of sexually active adolescents who use contraception, and increasing the percentage of sexually active adolescents who used a condom the last time they had sexual intercourse.¹⁴

A. Sexual Activity, Age at First Intercourse, and Number of Sexual Partners

Of the nearly 2000 high school students responding to the survey, half (50%) reported having had sexual intercourse at least once in their lifetime.¹⁵ This is roughly similar to the 1990 national rate¹⁶ for high school students (54%) and to the Massachusetts rate (excluding Boston) from the 1990 survey (46%).¹⁷ As discussed above, because the sample characteristics differ between 1990 and 1992, these data do not necessarily indicate any change in sexual activity among Massachusetts adolescents over the two year period.

Figure 2 shows that the percentage of students in 1992 who have ever had sexual intercourse increases with grade level and varies somewhat by gender. While one would expect sexual activity to increase with a student's grade and/or age, these results suggest that the greatest increases in sexual activity among adolescent women occur between ninth and 10th grade, and again between 11th and 12th grade, and that little change occurs from 10th to 11th grade. This may have implications for the grades in which to target sexuality education programming aimed at postponing the initiation of sexual activity.

FIGURE 2: PERCENT OF STUDENTS REPORTING EVER HAVING SEXUAL INTERCOURSE, BY GRADE AND GENDER, MASSACHUSETTS YRBS, 1992



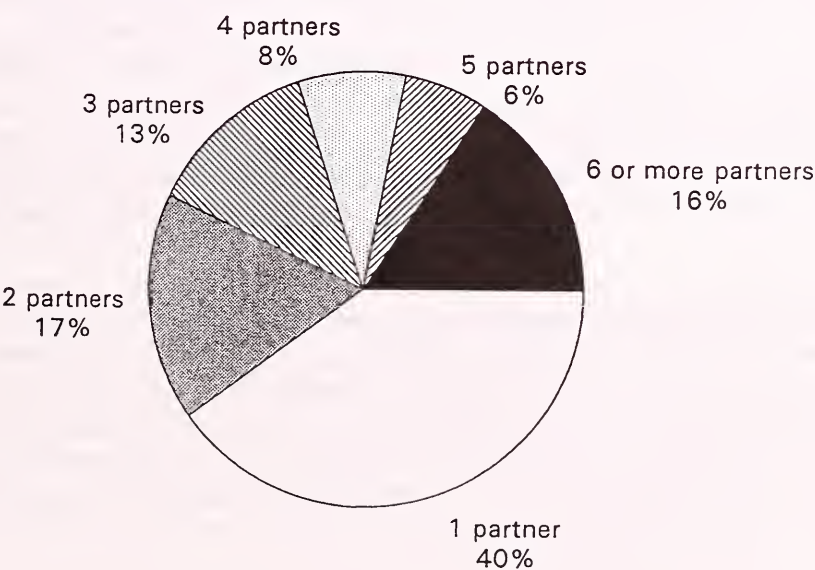
Overall rate: men 53%, women 47%

While 50 percent of all students reported having had sexual intercourse at least once (these students referred to as "sexually experienced"), only 36 percent of all students reported having sexual intercourse in the previous three months (these students referred to as "sexually active"). This pattern is similar to that found in the 1990 survey and suggests that while a majority of students who have ever had sexual intercourse are currently sexually active, a substantial minority are not currently engaging in intercourse. This finding reflects the sporadic nature of adolescent sexual activity and has implications for adolescent HIV prevention education, sexuality education, and contraceptive counseling, discussed below.

Of all respondents, six percent reported having had sexual intercourse before the age of 13, reflecting nine percent of males and three percent of females. This rate does not appear to have changed since 1990.

Figure 3 shows that the majority (60 percent) of students who have ever had sexual intercourse have had more than one sexual partner, and nearly one third (30 percent) have had four or more sexual partners. This pattern is similar for adolescent women and men.

FIGURE 3: LIFETIME NUMBER OF SEXUAL PARTNERS, SEXUALLY EXPERIENCED STUDENTS, MASSACHUSETTS YRBS, 1992.



The percentage of sexually experienced students who have had more than one and more than four partners increases with grade level (data not shown). Among ninth graders who have ever had sexual intercourse, almost one half (48%) have had more than one partner, and a quarter (25%) have had four or more partners. Among 12th graders who have ever had sexual intercourse, over two thirds have had more than one partner (69%), and over one third (37%) have had four or more sexual partners. Because having more than one sexual partner appears to be the rule rather than the exception, particularly among the older students in this sample, this finding underlines the importance of condom use for preventing STD among sexually active individuals in this population.

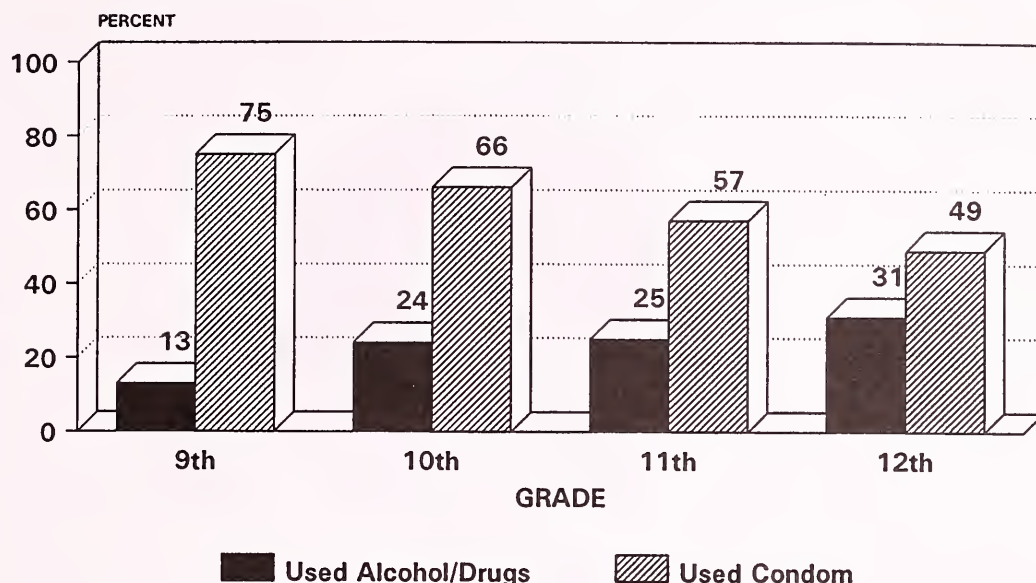
B. Use of Alcohol and Other Drugs, Condoms, and Contraception at Last Sexual Intercourse

Of those students who have ever had sexual intercourse, one quarter (25%) reported that they or their partner had been using alcohol or other drugs the last time they had sexual intercourse. This is similar to the rate derived from 1990 survey and suggests that there had been no significant change over the two year period.

Over half (58%) of sexually experienced students reported that they used a condom with their partner the last time they had sexual intercourse. While this is not directly comparable with the 1990 rate, the data do suggest an increase in condom use among the sexually experienced from approximately 47 percent in 1990. While some of this difference between 1990 and 1992 may be attributable to weighting, sampling, and wording disparities, the magnitude of the difference does suggest that some increase in condom use among the sexually active adolescents may have taken place. Confirmation of this finding awaits the results of the 1993 state-wide survey now being planned.

Figure 4 shows how the reported use of alcohol and other drugs at last sexual intercourse and reported condom use at last intercourse vary with the students' grade level. The results indicate that younger students are less likely to have been using alcohol and other drugs and more likely to have used a condom with their partner the last time they had sexual intercourse. Sexually active students in the 12th grade were more likely than younger students to have used alcohol or other drugs the last time they had sexual intercourse, and less likely to use a condom with their sexual partner.

FIGURE 4: ALCOHOL AND OTHER DRUG USE AND CONDOM USE AT LAST SEXUAL ENCOUNTER, BY GRADE, MASSACHUSETTS YRBS, 1992.



OVERALL, 58% USED A CONDOM AND 25% USED ALCOHOL OR OTHER DRUGS THE LAST TIME THEY HAD SEXUAL INTERCOURSE.

While other research has shown a decrease in condom use among adolescents after using alcohol and other drugs,¹⁸ other factors may account for the lower level of condom use among the older students. These include the possibility that older students may be more likely to be using prescription methods rather than the condom for contraceptive purposes, and the possibility that HIV prevention education has been more effective at altering the condom use behavior of younger students as compared to that of older students. Further research is needed in both of these areas.

Students were also asked about the contraceptive method used the last time they had sexual intercourse; these results are shown in Figure 5. On this question, about half (51%) of sexually experienced students indicated that they used a condom. While this level is slightly lower than the 58 percent reported earlier, it is likely that some students use condoms in addition to another method (such as contraceptive foam or the pill), and that on this question some students reported the other method rather than the condom. The 1990 survey indicated that about 42 percent used a condom for contraception the last time they had intercourse, so again the 1992 result is suggestive of an increase in condom use, though the magnitude is again unclear.

FIGURE 5: CONTRACEPTIVE METHOD USED AT LAST SEXUAL ENCOUNTER, SEXUALLY EXPERIENCED STUDENTS, MASSACHUSETTS YRBS, 1992.

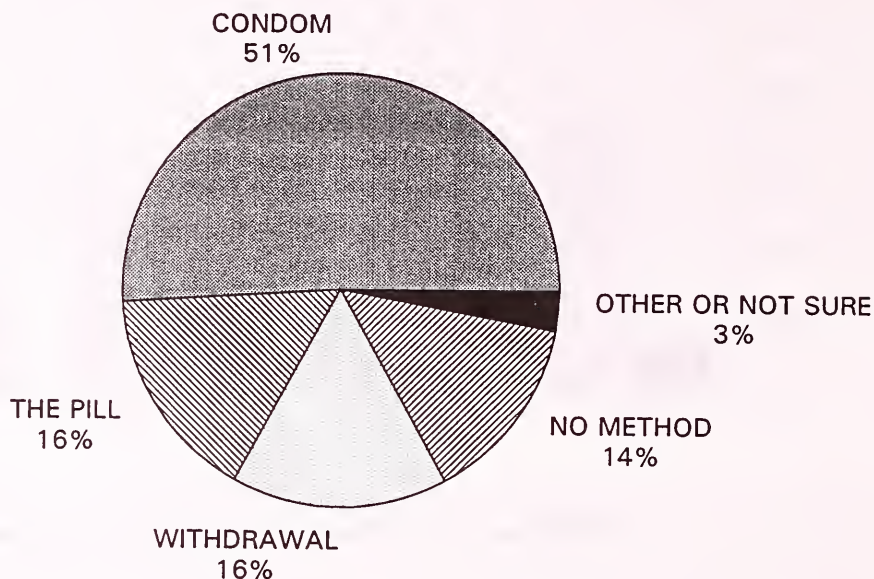


Figure 5 shows that a substantial proportion of sexually experienced students continue to practice withdrawal, despite its ineffectiveness as a contraceptive method. Another substantial proportion reported using no contraceptive method. Combined, these data suggest that nearly one third of sexually active students were not using an effective contraceptive method the last time they had sexual intercourse. These findings underscore the need for comprehensive sexuality education that, in addition to discussions of abstinence, includes information and skills necessary for using contraception and for family planning services that are accessible and attractive to young people.

C. Pregnancy and Sexually Transmitted Disease (STD)

Of all high school students responding to the survey, five percent indicated that they had either been pregnant or gotten someone pregnant one or more times. This rate appears unchanged from 1990. Of all *sexually experienced* students, nine percent have been pregnant or caused a pregnancy at least once. This increases from five percent of all sexually experienced ninth graders to 10 percent of all sexually experienced 12th graders.

Of students reporting ever having sexual intercourse, 11 percent reported having been told by a doctor or nurse that they had a sexually transmitted disease (STD). While this level is within the range of the findings of other studies,¹⁹ it is probably an underestimate given that not all students have access to health care and that many STD are asymptomatic and go unnoticed.

D. AIDS/HIV Education and Talking with Parents about AIDS/HIV

A majority (86%) of students responding to the survey indicated that they had been taught about AIDS/HIV infection in school, a level slightly higher than that found in 1990. The percentage that had been taught about AIDS/HIV infection in school was slightly higher among ninth graders than among 12th graders, which also suggests that the number of students who receive this education is increasing over time. While these findings seem encouraging, one must keep in mind that the content and quality of HIV/AIDS education varies considerably from school to school, and may or may not include specific information or instruction on methods of preventing or reducing the risk of HIV infection.

About two thirds (68%) of students indicated having talked about AIDS/HIV infection with their parents or other adults in their family. While the magnitude of change is unclear, this does appear to be an increase from 1990. The 1992 results also indicate that more adolescent women (74%) than men (62%) reported having spoken with their parents or other adults in their family about AIDS/HIV infection. However, as with school-based AIDS/HIV education, these data do not reveal the content of parent-child communication about AIDS/HIV, and the degree to which prevention is discussed remains uncertain.

E. Implications and Recommendations

The findings reported here have implications for sexuality education and HIV prevention education. A significant percentage of students are initiating sexual activity during or before the ninth grade and have had sexual intercourse with several partners. While adolescent sexual activity is sporadic, so appears to be the use of contraception, despite the apparent increase in condom use between 1990 and 1992. These findings underline the importance of providing sexuality education and HIV prevention education before the ninth grade and of ensuring that prevention messages continue to be provided to students throughout their high school years. The findings also support including the information and skills necessary for accessing and using contraception and condoms, along with discussions of sexual abstinence, in sexuality education and HIV prevention education programs. Attention should also be paid to dispelling myths related to contraception and HIV infection, and to discussing how alcohol and drug use can affect decision-making around sexual activity. Sexuality education and HIV prevention education should be incorporated into comprehensive health education and human services programs, as recommended by the Massachusetts Board of Education.

III. ALCOHOL AND OTHER DRUG USE

Background: Alcohol is a major factor in approximately half of all homicides, suicides, and motor vehicle crashes,²⁰ which are the leading causes of death and disability among young people.²¹ Heavy drinking among youth has been linked conclusively to physical fights, destroyed property, and academic and job problems.²² In the United States, approximately 100,000 deaths per year are attributable to misuse of alcohol.²³

Drug abuse is related to morbidity and mortality due to injury, early unwanted pregnancy, school failure, delinquency, and transmission of sexually transmitted diseases, including HIV infection.²⁴ One in four adolescents in the United States is estimated to be at very high risk for the consequences of alcohol and other drug problems.²⁵ Despite improvements in recent years, illicit drug use is greater among high school students and other young adults in the United States than in any other industrialized nation.²⁶

National health objectives for the year 2000 include increasing the average age at which youth first use alcohol and marijuana and reducing the proportion of young people who have used alcohol in the last month.²⁷

A. Alcohol

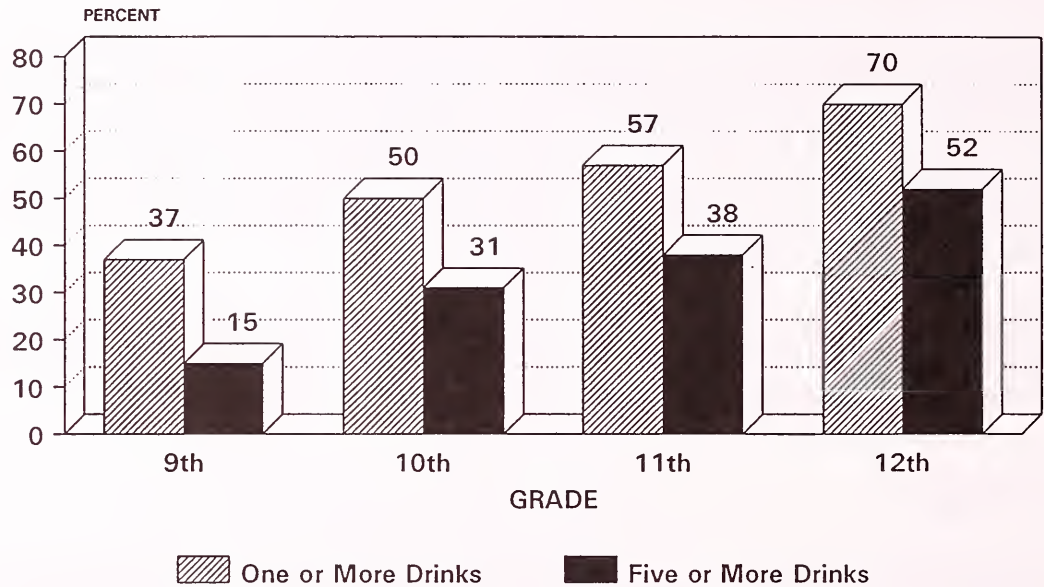
Of students surveyed, a large majority (82%) had used alcohol²⁸ on at least one occasion in their lives. Slightly more than one quarter of all high school students surveyed (28%) reported having their first alcoholic drink before the age of 13. While this may not reflect all high school students in Massachusetts, it is slightly higher than the rate found in the 1991 national YRBS, in which 77 percent of high school students had used alcohol at least once in their lives.²⁹

More than half of all students in the Massachusetts survey (54%) reported having at least one drink in the last 30 days, and over one third (35%) reported having five or more drinks in a row on one or more occasions in the last month. Again, these rates are slightly higher than the national rates from 1991, where 46 percent had used alcohol in the last month and 27 percent had had five or more drinks on one occasion in the last 30 days.²⁹

In Massachusetts alcohol consumption increases dramatically with grade level, as shown in Figure 6. In particular, 70 percent of all seniors reported having used alcohol at least once in the last month, and over half of seniors reported having had five or more drinks on one or more occasions during that time. These data indicate a high level of alcohol use among Massachusetts high school students, and suggest that Massachusetts is far from achieving the

national health objective of reducing recent heavy alcohol use among high school seniors to no more than 28 percent by the year 2000.³⁰ In Massachusetts, more adolescent men than adolescent women surveyed reported drinking heavily in the last month (data not shown).

FIGURE 6: ALCOHOL USE IN THE LAST 30 DAYS AMONG HIGH SCHOOL STUDENTS, BY GRADE, MASSACHUSETTS YRBS, 1992.

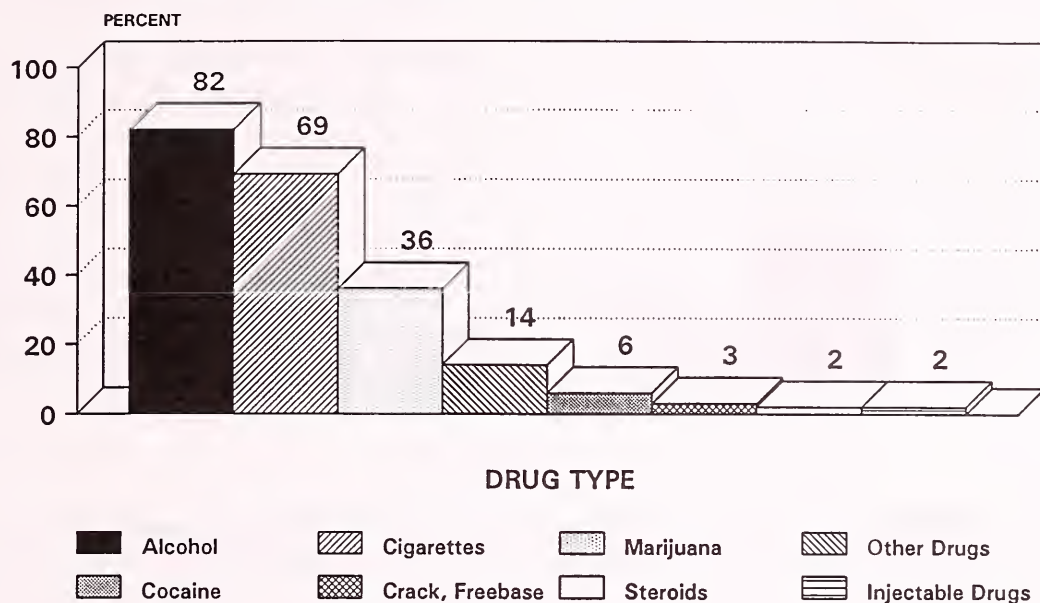


For all students: 54% drank at least once; 35% had five or more drinks in a row on one or more occasions.

B. Marijuana, Cocaine, and Other Illegal Drugs

Figure 7 presents reported lifetime use of a variety of substances, including alcohol and tobacco, among students responding to the survey. The data clearly show that while the majority of students have used alcohol and tobacco, much smaller percentages have used marijuana and other illegal drugs. While over one third (35%) of respondents reported having tried marijuana at least once in their lives, only six percent of students have tried cocaine and only two percent have taken steroids or injected drugs without a doctor’s prescription. These percentages are similar to those found for the nation as a whole,³¹ except for the case of marijuana, in which there appears to be higher use among Massachusetts students.

FIGURE 7: REPORTED LIFETIME USE OF ALCOHOL AND OTHER DRUGS AMONG HIGH SCHOOL STUDENTS, MASSACHUSETTS YRBS, 1992.

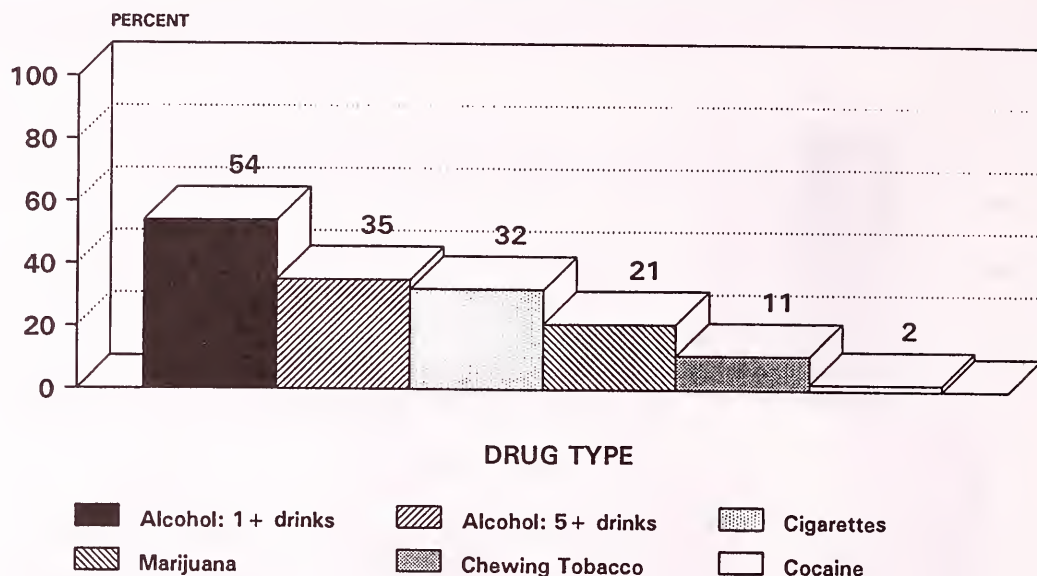


Other drugs include LSD, PCP, ecstasy, mushrooms, speed, ice, and heroin.

It is also important to examine recent substance use among adolescents. While many young people have tried various substances once or twice, fewer would be expected to be using them regularly. Figure 8 shows the percentage of students that reported using various substances in the 30 days prior to the survey. One half of students reported using alcohol, one third reported heavy alcohol use on one or more occasions, one third used tobacco, and one fifth used marijuana. Approximately two percent of students reported using cocaine in the last month. As found with lifetime use, these levels are higher than the national levels for alcohol and marijuana, and are approximately similar to the national levels for the other substances.³¹

Drug use prior to age 13 was reported only among a small percentage of respondents. Only seven percent of high school students surveyed reported having tried marijuana before the age of 13, and only one percent reported having first used cocaine prior to that age.

FIGURE 8: REPORTED USE OF ALCOHOL, TOBACCO, AND OTHER DRUGS IN THE LAST 30 DAYS, MASSACHUSETTS YRBS, 1992.



Alcohol consumption presented in number of drinks consumed on one or more occasions.

C. Implications and Recommendations

Massachusetts high school students surveyed reported high levels of alcohol and other drug use and appear to be using the more common drugs of alcohol and marijuana at a higher rate than high school students in the nation as a whole. Regular and heavy use of alcohol, particularly among older students, appears to be especially prevalent. It is important also to recognize that substance abuse is not a singular risk behavior, but rather is closely connected to a variety of other health risk behaviors, including but not limited to unprotected sexual intercourse, suicidality, violence, and unintentional injuries, such as those related to drinking and driving.

As with sexuality education and HIV prevention education, substance abuse prevention education needs to be incorporated into a comprehensive health education curriculum, to begin before students enter high school and to continue throughout the high school years. Programs aimed at reducing the heavy and frequent use of alcohol and other drugs may be most effective when developed as part of systemic school change and when coordinated with local and state-wide efforts geared toward increasing general awareness of substance abuse and toward reducing substance abuse behaviors among adults.

IV. BEHAVIORS THAT RESULT IN INTENTIONAL AND UNINTENTIONAL INJURIES

Background: In Massachusetts, injuries were the leading cause of death among youth aged 15 to 19 between 1979 and 1987.³² In 1987, injuries accounted for three quarters of all deaths among 15 to 19 year-olds in the state.³² Injury deaths are also the leading cause of deaths of adolescents nation wide. Injury deaths include suicides, homicides, motor vehicle occupant deaths, and drownings, among others. National health objectives for the year 2000 include reducing injurious suicide attempts, physical fighting, weapon carrying, motor vehicle and alcohol-related motor vehicle deaths, and drowning deaths among adolescents.³³

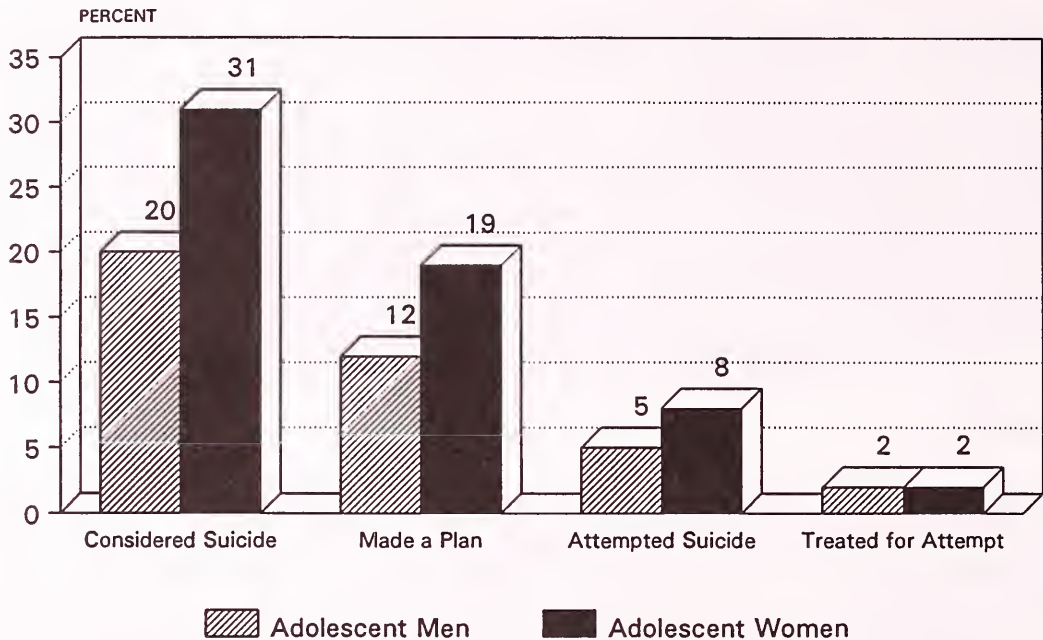
A. Suicide

Background: In the United States, suicide is the third leading cause of death among youth aged 15-24 and the second leading cause of death among white males aged 15-24.³⁴ The suicide rate for persons aged 15-24 has tripled since 1950.³⁵ Some of the factors linked with youth suicide include substance abuse, being a friend or family member of a suicide victim, homosexuality, and ready access to lethal methods, such as guns.³⁶

Of Massachusetts teenagers responding to the survey, one quarter (25%) indicated that they had seriously considered suicide in the last 12 months. This rate is 50 percent higher for adolescent women (31%) than for adolescent men (20%). In the last 12 months, 16 percent of all students made a plan to attempt suicide, six percent actually attempted suicide, and two percent of all students experienced a suicide-related injury, poisoning or overdose that had to be treated by a doctor or nurse. These levels are similar to those measured in the 1991 national survey of adolescents.³⁷

Figure 9 suggests that adolescent women are more likely than adolescent men to consider, plan, and attempt suicide. While this gender difference was also identified in the national survey, other research indicates that the majority of successful suicide attempts among Massachusetts adolescents are among men; in 1987, 27 of the 31 known suicides among teenagers were committed by young men.³⁸

FIGURE 9: PERCENT OF STUDENTS WHO CONSIDERED, PLANNED, AND ATTEMPTED SUICIDE IN THE LAST 12 MONTHS, MASSACHUSETTS YRBS, 1992.



B. Physical Fighting

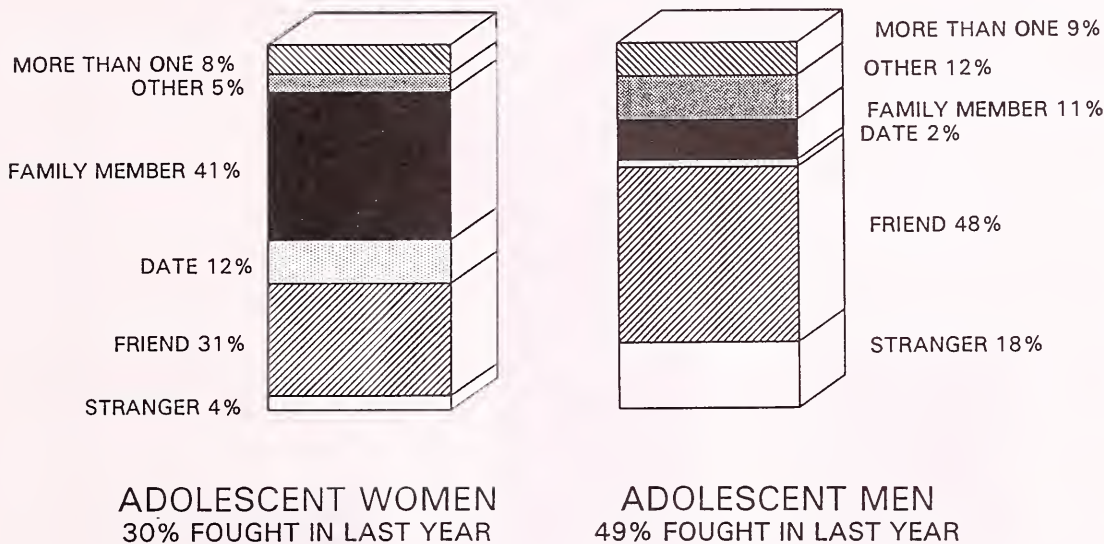
***Background:** Homicide is the second leading cause of death among all adolescents and young adults and is the leading cause of death among black youth in the United States.³⁹ Fighting is the most important antecedent behavior for a large proportion of homicides among adolescents.⁴⁰*

Of students surveyed in Massachusetts, two fifths (40%) reported being in a physical fight one or more times in the last 12 months. This includes almost a third of adolescent women (30%) and nearly half of adolescent men (49%). Of all students surveyed, five percent were in one or more fights in which they were injured and had to be treated by a doctor or nurse. This is more than twice as high for adolescent men as women (7% and 3% respectively). While high, these levels are very similar to those identified in the 1991 national adolescent survey.⁴¹

Of those students who did report having one or more physical fights in the last 12 months, 41 percent reported having fought with a friend or acquaintance, 23 percent with a family member, 13 percent with a total stranger, and five

percent with a boyfriend, girlfriend, or date ("date" on Figure 10). Figure 10 shows that while adolescent women were less likely than men to report actually being in a physical fight, a greater proportion of those who did fight reported fighting with family members or with dates.

FIGURE 10: PHYSICAL FIGHTING PATTERNS AMONG HIGH SCHOOL STUDENTS, BY GENDER, MASSACHUSETTS YRBS, 1992.



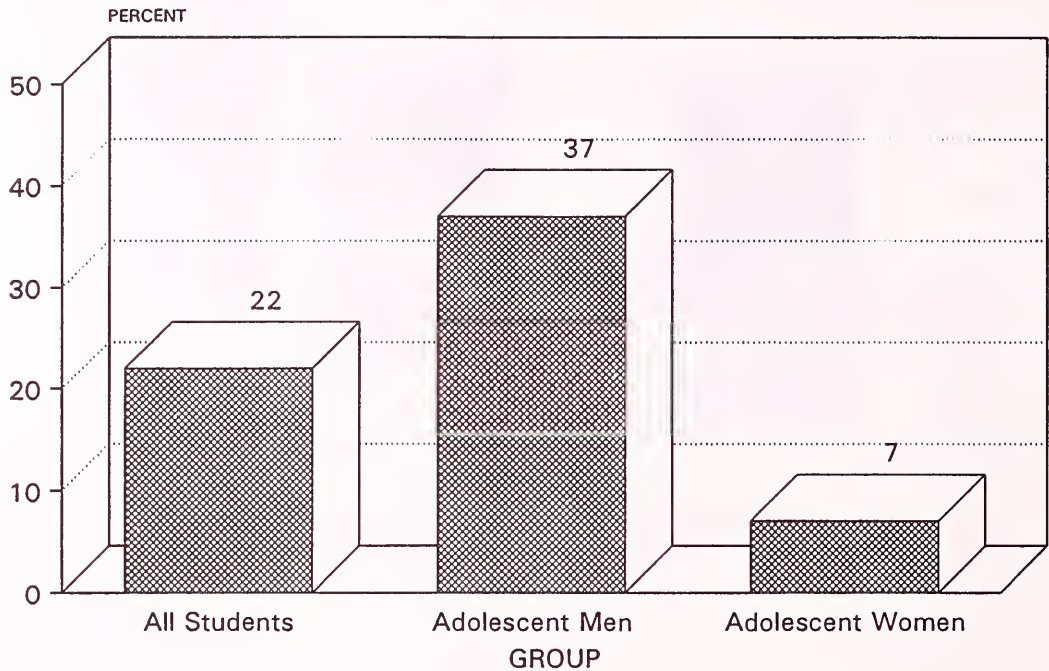
C. Weapon Carrying

Background: Approximately nine out of ten homicide victims in the United States are killed with a weapon of some type, such as a gun, knife, or club. Homicide is the leading killer of black adolescents and young adults.⁴² The immediate accessibility of a firearm or other lethal weapon often is the factor that turns a violent altercation into a lethal event.⁴³ Firearm-related suicides account for 60 percent of adolescent and young adult suicides.⁴⁴

In 1992, among Massachusetts teens responding to the survey, nearly one quarter (22%) reported carrying a weapon in the last 30 days. This may reflect an increase over 1990, when only 17 percent of students responding to a similar survey reported carrying a weapon in the past month. However, as with other comparisons discussed earlier, it is unclear whether this difference is statistically significant.

Figure 11 shows the large differential in recent weapon carrying between adolescent women and men. Over one third (37%) of young men reported carrying a weapon, compared to only 7 percent of young women. Weapon-carrying does not appear to vary consistently with grade level.

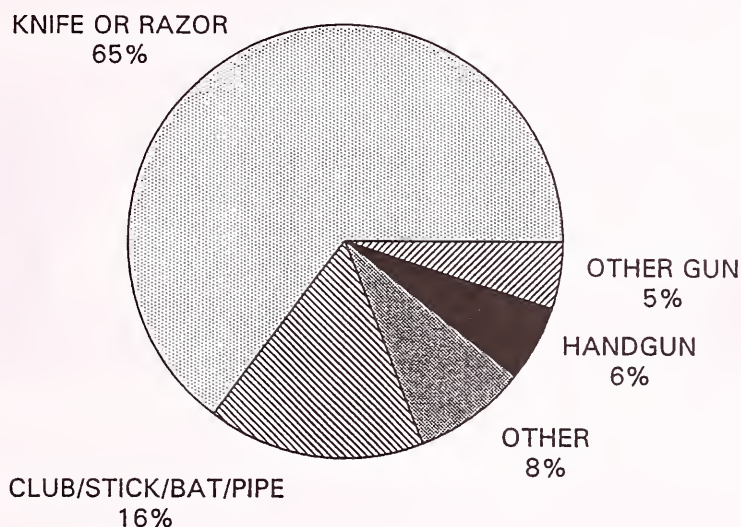
FIGURE 11: PERCENT OF STUDENTS REPORTING CARRYING A GUN, KNIFE, CLUB OR OTHER WEAPON IN THE LAST 30 DAYS, MASSACHUSETTS 1992.



Of all students surveyed, 2.3 percent reported carrying a gun in the last 30 days. Since no adolescent women reported carrying a gun in the last 30 days, this actually reflects 4.6 percent of adolescent men. Recalling the nature of the sample, these data show that nearly one in 20 high school-aged men outside of Massachusetts' two largest cities reported carrying a gun in the past month. Clearly, lethal weapon carrying among adolescents is not confined to large urban areas but is in fact much more widespread.

Figure 12 presents the types of weapons carried by students in the last 30 days. Of students reporting carrying a weapon of any kind, knives and razors accounted for the majority of weapons, clubs, sticks, bats, or pipes accounted for 16 percent, and handguns and other guns accounted for 11 percent of weapons. This distribution is similar to that found in the 1991 national survey of high school students.⁴⁵

FIGURE 12: TYPES OF WEAPONS CARRIED BY HIGH SCHOOL STUDENTS IN THE LAST 30 DAYS, MASSACHUSETTS YRBS, 1992.



REFLECTS THOSE STUDENT REPORTING CARRYING ANY WEAPON IN LAST 30 DAYS.

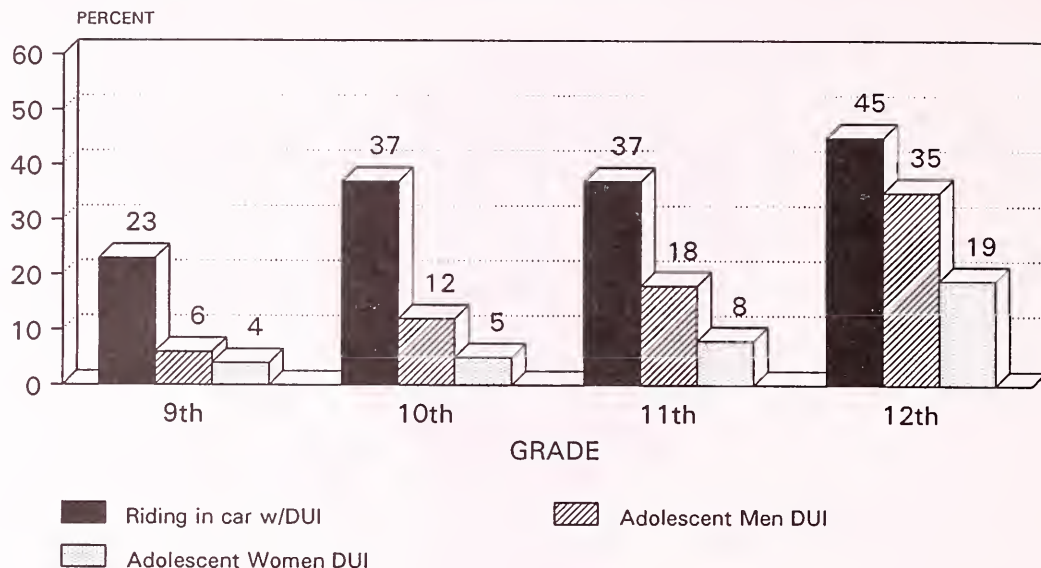
D. Drinking and Driving

Background: *Motor vehicle crash injuries, more than half of which involve alcohol,⁴⁶ are the leading cause of death among youth aged 15-24 in the United States.⁴⁷ In Massachusetts, the highest rate of motor vehicle occupant deaths in 1987 was among men aged 15 to 19.⁴⁸ Alcohol-related traffic crashes cause serious injury and permanent disability and rank as the leading cause of spinal cord injury among adolescents and young adults.⁴⁹*

In Massachusetts, over a third (36%) of students surveyed reported having been a passenger in the last 30 days in a car driven by someone who had been using alcohol. Fourteen percent reported having driven a car in the last 30 days after using alcohol themselves. These levels are approximately the same as those identified in the 1990 Massachusetts survey.⁵⁰

Figure 13 shows how riding with a driver-under-the-influence and driving after drinking increases dramatically with grade level. In particular, the data show an increase in driving-under-the influence from less than 10 percent of ninth graders (most of whom do not yet have driver's licenses), to over a third of 12th grade men and nearly a fifth of 12th grade women. These adolescents are at high risk for fatal and disabling injuries and for causing serious and/or fatal injuries to others.

FIGURE 13: PERCENT OF STUDENTS DRINKING AND DRIVING IN THE LAST 30 DAYS, MASSACHUSETTS YRBS, 1992.



There is little difference between men and women in the tendency to ride with a driver who had been drinking.

E. Seatbelt and Helmet Use, Motorcycles and Bicycles

***Background:** Seatbelt use is estimated to reduce motor vehicle fatalities by 40% to 50% and serious injuries by 45% to 55%.⁵¹ Head injury is the leading cause of death in motorcycle and bicycle crashes.⁵¹ Unhelmeted motorcyclists are two times more likely to incur a fatal head injury than helmeted riders.⁵² In addition, the risk of head injury for unhelmeted bicyclists is more than 6 1/2 times greater than for helmeted riders.⁵³*

In Massachusetts, 40 percent of high school students surveyed reported never or rarely wearing a seatbelt when riding in a car driven by someone else. This appears to be a decrease from 1990, when 52 percent reported never or rarely wearing a seatbelt,⁵⁴ though some of the difference may be due to differences in the samples. In 1992, more young men (47%) than women (34%) reported never or rarely wearing a seatbelt.

In Massachusetts, 24 percent of students surveyed reported riding a motorcycle in the last 12 months; young men were twice as likely as women to report having ridden a motorcycle (33% and 15% respectively). Of those who had ridden motorcycles, 24 percent reported never or rarely wearing a

helmet. Of students surveyed, 78 percent reported riding a bicycle in the last 12 months; of those who did ride, 93 percent reported never wearing a helmet when they rode a bicycle, and another three percent reported rarely wearing a helmet.

F. Unsupervised Swimming

***Background:** Drowning is the third leading cause of injury deaths, with drowning rates highest for children less than 5 years of age and young adults aged 15-24.⁵⁵*

In Massachusetts, of high school students surveyed who reported having been swimming in the last 12 months, half (50%) reported never or rarely having an adult or a lifeguard watching them.

G. Implications and Recommendations

These findings indicate the high prevalence of behaviors related to injuries and premature death among Massachusetts adolescents. Violence and the potential for violence is widespread, with 40 percent having been in a physical fight, nearly one quarter carrying some sort of weapon, and nearly one in 20 adolescent men reporting that they carry a gun. In addition, one in four students seriously considered suicide in the last year and a large percentage of students reported driving after using alcohol in the last month. These findings underscore the importance of including stress and conflict management and violence prevention education as part of school-based comprehensive health education and human services programs and the importance of restructuring schools to provide a safe, caring, and supportive environment for all students.

V. TOBACCO USE

***Background:** Tobacco is the single most important preventable cause of death in the United States, accounting for one of every six deaths. Smoking is a major risk factor for heart disease; chronic bronchitis; emphysema; and cancers of the lung, larynx, pharynx, mouth, esophagus, pancreas, and bladder. If 29% of the 70 million children now living in the United States smoke cigarettes as adults, then at least five million of them will die of smoking-related diseases.⁵⁶ In addition, smoking is related to poor academic performance and the use of illicit drugs and alcohol.⁵⁷ Over one million teenagers begin smoking each year.⁵⁸*

National health objectives for the year 2000 include reducing the percentage of people under 20 who have ever smoked regularly to no more than 15 percent, increasing the average age at which people smoke their first cigarette, and reducing smokeless tobacco use, particularly among young men.⁵⁹

A. Prevalence and Level of Cigarette Smoking

In Massachusetts high schools surveyed, over two thirds (69%) of students surveyed reported having tried smoking at least once in their lifetime. This level is similar for men and women students and increases from half (56%) of ninth graders to three-quarters (76%) of 12th graders. This rate is similar to that found in the national survey, in which 70 percent reported having tried smoking at least once.⁶⁰ Nearly one quarter (24%) of all students surveyed in Massachusetts reported having smoked a whole cigarette for the first time before the age of 13.

Over one quarter (27%) of all students reported that they had smoked cigarettes regularly at some point in their lives (regular smoking is defined as smoking at least one cigarette a day for 30 days or more). Figure 14 shows that the percentage of students who have ever smoked regularly increases with grade level and increases more rapidly for adolescent women than for men. By 12th grade, 43 percent of adolescent women have smoked regularly, compared to 31 percent of adolescent men. Of all students responding to the survey, seven percent reported smoking regularly before age 13.

Figure 15 shows the percentage of students who reported smoking in the 30 days preceding the survey, and levels of smoking among students who smoked. Approximately one out of three students surveyed reported smoking in the last month; this proportion more than doubles between ninth grade (20%) and 12th grade (43%) (data not shown by grade).

Figure 15 also shows that, of those students who smoked in the last month, nearly three quarters smoked more than two cigarettes per day on the days they smoked, and nearly a quarter (23%) smoked more than 10 cigarettes a day on those days.

FIGURE 14: PERCENT OF HIGH SCHOOL STUDENTS WHO HAVE EVER SMOKED REGULARLY, BY GRADE AND GENDER, MASSACHUSETTS YRBS, 1992.

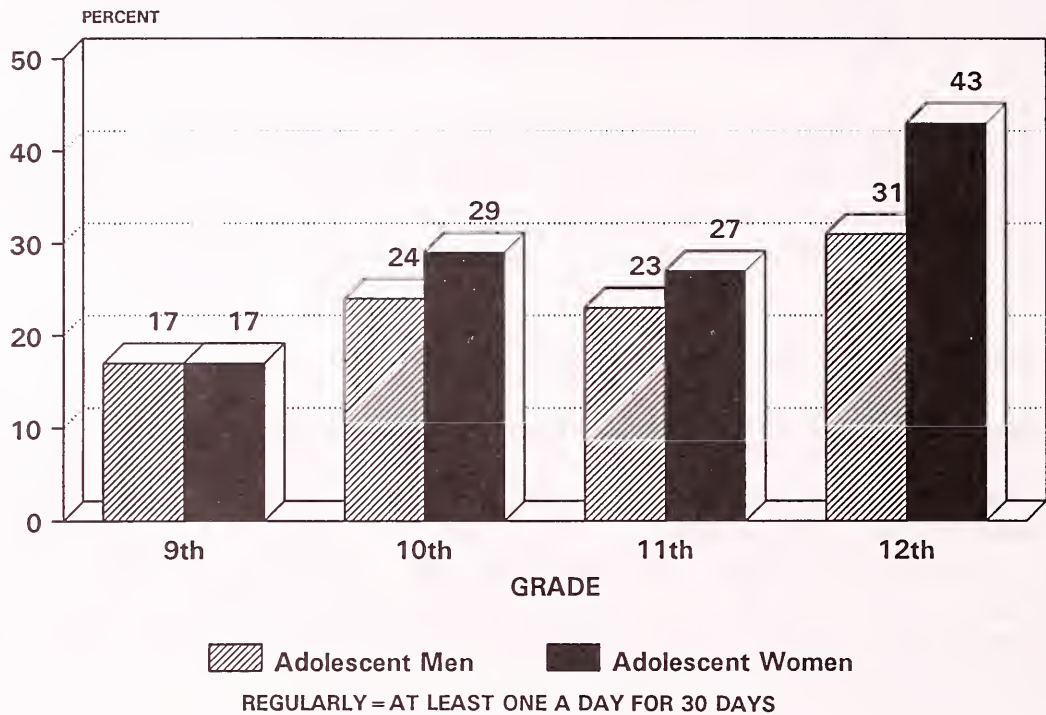
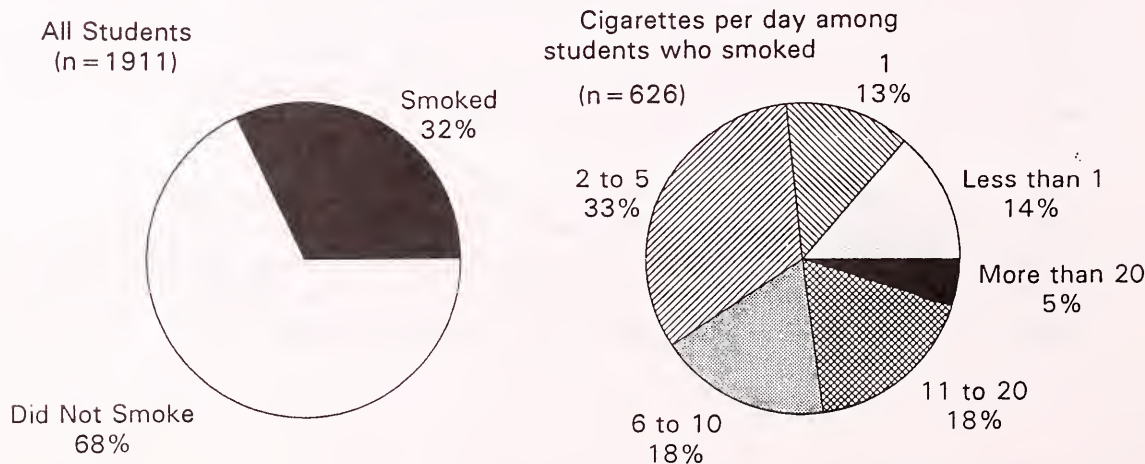


FIGURE 15: PREVALENCE AND LEVEL OF SMOKING IN THE LAST 30 DAYS AMONG HIGH SCHOOL STUDENTS, MASSACHUSETTS YRBS, 1992.



B. Smoking Cessation

Of those students who have ever smoked, over half (57%) reported having tried to quit in the last six months; this reflects almost two thirds (64%) of females who have ever smoked and nearly one half (49%) of males who have ever smoked. Of all students in the survey, including those who have never smoked, 18 percent reported having tried to quit smoking in the last six months.

C. Chewing Tobacco and Snuff

Chewing tobacco and snuff are also used by students responding to the survey. Approximately one out of ten students (11%) reported using chewing tobacco or snuff in the 30 days preceding the survey. While this figure is comparable to the national rate (also 11%),⁶¹ it masks the large disparity between young men and women: 20 percent of young men used chewing tobacco or snuff in the last month, compared to only two percent of young women. Unlike smoking, the use of chewing tobacco or snuff in the last 30 days does not appear to increase with grade level.

D. Implications and Recommendations

Though it is illegal to sell cigarettes in Massachusetts to persons under 18 years of age, these data do indicate widespread smoking among adolescents and heavy smoking among a significant proportion of adolescent smokers. After alcohol, tobacco is the most widely used substance among adolescents in Massachusetts. At the same time, however, a large percentage of students have tried to quit smoking. These findings call not only for smoking prevention education, but also for smoking cessation education and support services. Smoking prevention and cessation education should be integrated within a comprehensive health education and human services program and reach students in the youngest grades before they begin smoking. Such programs should also be integrated with efforts to create smoke-free school environments and to reduce adult smoking behavior in the home.

VI. DIETARY BEHAVIORS

***Background:** Nationwide, obesity and extreme obesity appear to be increasing dramatically among adolescents aged 12 to 17.⁶² Obesity acquired during childhood or adolescence may persist into adulthood, increasing later risk for chronic conditions such as diabetes, heart disease, high blood pressure, stroke, some types of cancer, and gall bladder disease.⁶³ In addition, children and adolescents often experience social and psychological stress related to obesity.⁶⁴ Overemphasis on thinness during adolescence may contribute to eating disorders, such as anorexia nervosa and bulimia.⁶⁵*

Regarding food choices, Americans currently consume more than 36 percent of their total calories from fat. High fat diets, which are associated with increased risk of obesity, heart disease, some types of cancer, and other chronic conditions, often are consumed at the expense of foods high in complex carbohydrates and dietary fiber, foods considered more conducive to health.⁶⁵ Because lifetime dietary patterns are established during youth, adolescents should be encouraged to choose nutritious foods and to develop healthy eating habits.⁶⁶ Nutritional guidelines issued by the federal government recommend eating three to five servings per day of vegetables and two to four servings of fruit.⁶⁷

In Massachusetts, adolescents have limited knowledge of nutrition, more than half of adolescents skip breakfast frequently, and adolescent women have an especially low participation in school lunch programs.⁶⁸ National health objectives for the year 2000 include reducing overweight prevalence among adolescents, reducing fat intake for people aged two and older, and increasing complex carbohydrate and fiber-containing foods in adult diets.⁶⁹

A. Bodyweight Perceptions and Efforts to Gain or Lose Weight

Of students responding to the survey, approximately half (49%) thought of themselves as close to the right weight. Compared to adolescents nationwide, Massachusetts adolescents appear more likely to think of themselves as overweight and less likely to think of themselves as the right weight. In the 1990 survey, 60 percent of Massachusetts adolescents thought of themselves as about the right weight.⁷⁰

Figure 16 shows that, in Massachusetts, young women were less likely than young men to think of themselves as the right weight, and more likely to think of themselves as slightly or very overweight. This gender difference has been found in the nationwide survey as well.

FIGURE 16: HIGH SCHOOL STUDENTS' PERCEPTIONS OF THEIR OWN BODYWEIGHT, MASSACHUSETTS YRBS, 1992.

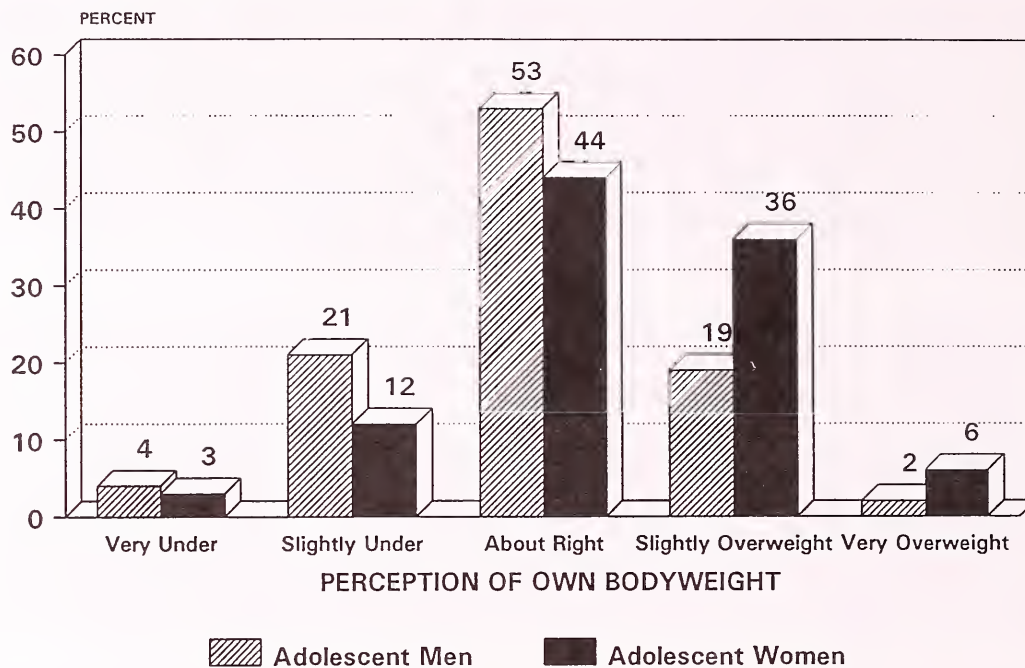
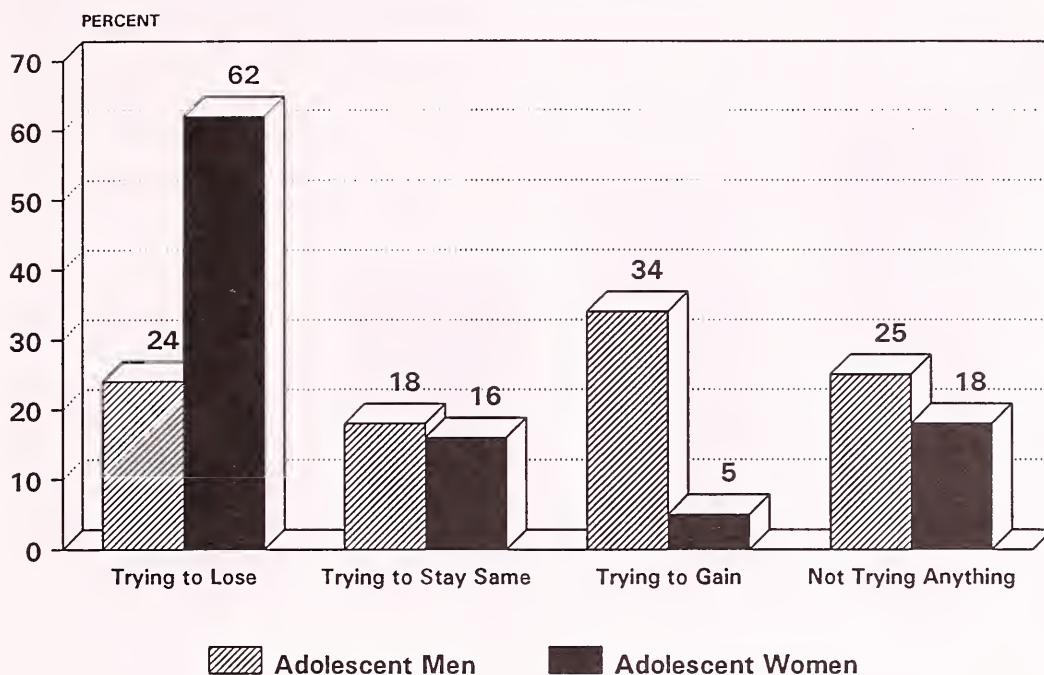


Figure 17 shows the percentage of students surveyed who reported trying to gain or lose weight. Overall, 43 percent of students reported that they were trying to lose weight. Nearly two thirds (62%) of young women reported trying to lose weight, while over a third of young men were trying to gain weight. This data is suggestive of a change since 1990, when only 33 percent of students overall and 49 percent of adolescent women were trying to lose weight.

Of all students surveyed, roughly half of all students (48%) reported having dieted, exercised, or done both to try to lose weight or to keep from gaining weight in the last week, and five percent reported having taken diet pills and/or made themselves vomit in that time. This latter statistic includes an alarming 11 percent of 12th grade women.

FIGURE 17: PERCENT OF HIGH SCHOOL STUDENTS TRYING TO GAIN OR LOSE WEIGHT, MASSACHUSETTS YRBS, 1992.



B. Food Choices

Figure 18 shows the percentage of students who reported eating one or more servings of fruit, fruit juice, green salad, and cooked vegetables on the day preceding the survey. A majority of students reported having had fruit juice, though only half reported eating cooked vegetables and less than a third had eaten a green salad. There did not appear to be any large differences between adolescent men and women in reported consumption of fruit and vegetables.

Figure 19 shows the percentage of adolescent women and men who reported eating one or more servings of less healthy food choices on the day preceding the survey. While overall levels are similar, the data suggest that more adolescent men than women are consuming fatty meats (including sausage, hamburger, and hotdogs), french fries or potato chips, and bakery sweets on a regular basis.

FIGURE 18: PERCENT OF STUDENTS EATING ONE OR MORE SERVINGS OF FRUIT AND VEGETABLES, DAY BEFORE THE SURVEY, MASSACHUSETTS YRBS, 1992.

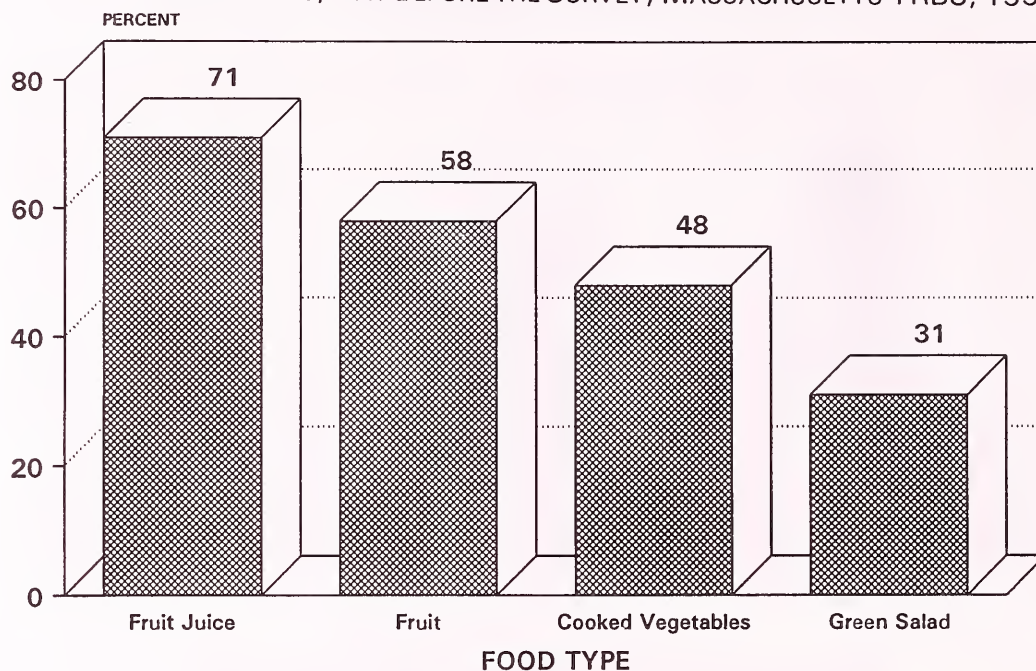
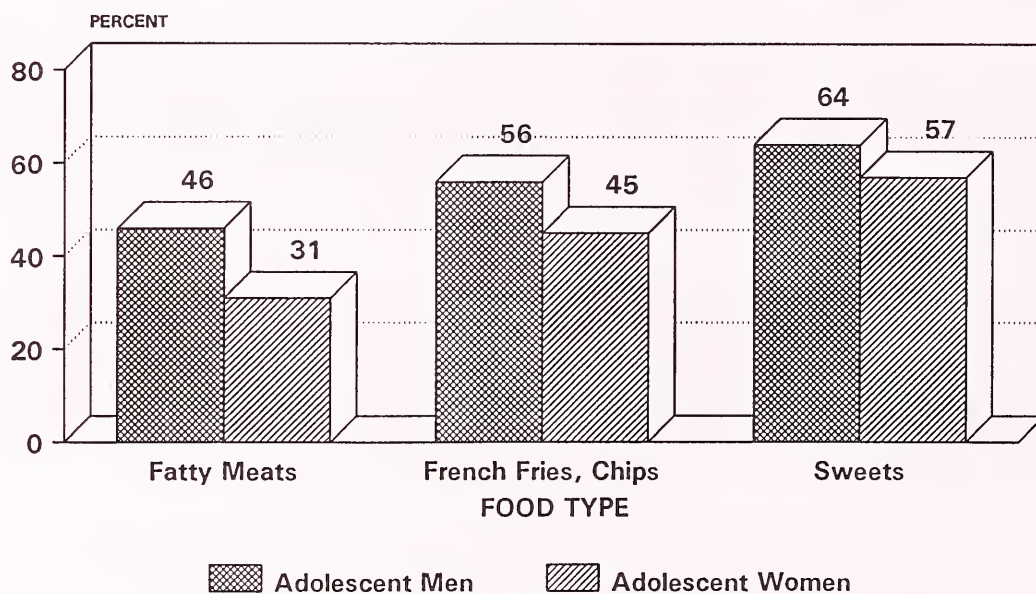


FIGURE 19: PERCENT OF STUDENTS EATING ONE OR MORE SERVINGS OF LESS HEALTHY FOODS, DAY BEFORE THE SURVEY, BY GENDER, MASSACHUSETTS YRBS, 1992.



Fatty meats include hamburger, hotdogs, and sausage; sweets include cookies, doughnuts, pie, and cake.

C. Implications and Recommendations

These data suggest that more young women than young men perceive themselves as being overweight and are trying to lose weight. While there is no data presented here on the actual weight of these young men and women, these findings may reflect the societal pressure for young women to be very thin, and have implications for teenage women's nutritional status. These data also suggest the need for weight management programs for those students who actually do need to lose or gain weight for health reasons.

The findings related to food choices are inconclusive. While many students are consuming fruits and vegetables, it is unclear what percentage are consuming the recommended five servings of fruits and vegetables combined. It is also unclear what percentage of students are eating more than one serving of less healthy foods daily. Efforts to improve students' diets should focus on nutrition education beginning at an early age, on improving healthy food choices offered in school breakfast and lunch programs, and on increasing awareness of the importance of nutrition among parents and in the community at large.

VII. PHYSICAL ACTIVITY

Background: Regular physical activity increases life expectancy.⁷¹ Additionally, regular physical activity can assist in the prevention and management of coronary heart disease, hypertension, diabetes, osteoporosis, obesity, and mental health problems.⁷² The quantity and quality of school physical education programs have a significant positive effect on the health-related fitness of children.^{73,74} National health objectives for the year 2000 include increasing regular physical activity among adolescents and adults, especially those activities which develop and maintain cardiorespiratory fitness, and muscular strength, endurance, and flexibility.⁷⁵

A. Physical Activity

In Massachusetts, students were asked to what degree they had engaged in certain types of physical activities in the past seven days. Almost two thirds (64%) of students indicated that they had engaged in activities which made them sweat and/or breathe hard on at least three of the last seven days. Approximately 42 percent of all students reported engaging in physical activity for strengthening or toning muscles, and 46 percent reported engaging in stretching exercises on at least three days in the past week. About the same proportion (45%) reported having walked or bicycled for at least 30 minutes on the day prior to the survey. Overall, these measures of exercise decrease with increasing grade level; a higher percentage of ninth graders compared to 12th graders engaged in physical activity in the last week.

B. Participation in Physical Education Classes and Sports Teams

Regarding physical education classes, over four fifths (82%) reported participating in a physical education class at least one day in an average school week. This level decreased substantially by grade level from 95 percent of ninth graders to only 69 percent of 12th graders. Just under three fifths (58%) of all students reported spending over 20 minutes actually exercising during their average physical education class. In addition, approximately half (48%) of all students reported having played on a sports team organized by their school in the last 12 months, and 40 percent indicated having played on a non-school sports team in the last year. A greater percentage of young men reported having played on either type of sports team, and young women reported spending less time actually playing sports during their physical education class than young men.

C. Implications and Recommendations

Physical education should be an integral part of the school curriculum and should be coordinated within a comprehensive health education and human services program. Physical education contributes to the development of the individual through the natural medium of physical activity - human movement. It is a planned sequence of learning experiences designed to fulfill the growth, development, and behavior needs of each student. It should teach students what physical fitness is and how to maintain physical fitness throughout their adult lives. The advantages, privileges, and courses available in the physical education program should be provided for all students (including those with physical limitations).⁷⁶

VIII. CONCLUSIONS AND RECOMMENDATIONS

The Youth Risk Behavior Survey provides one of the most comprehensive sources of information on youth risk behavior in the Commonwealth of Massachusetts. The 1992 survey results in many ways closely parallel the findings of the 1990 survey, and support the conclusion that large percentages of Massachusetts adolescents are at risk for a variety of current and future health problems. These include HIV infection and other sexually transmitted diseases; problems related to alcohol, tobacco, and other drug use; suicide, homicide, physical fighting and other non-fatal and fatal injuries; and problems associated with poor nutrition and lack of exercise.

The current survey results suggest that condom use, AIDS/HIV education, and communication between adolescents and adult family members about AIDS/HIV have increased in Massachusetts between 1990 and 1992. These changes may reflect the increased awareness of AIDS/HIV and the increased availability of condoms which have come about as a result of educational, media, and outreach efforts in schools and communities across the Commonwealth and across the country.

At the same time, continued high levels of alcohol and other drug use, cigarette smoking, drinking and driving, weapon carrying, and physical fighting indicate that prevention education in all of these areas must be expanded, deepened, and improved in order to protect the health and futures of Massachusetts teens.

Such findings underscore the need for linking school-based comprehensive health education and human services programs with systemic school change. Comprehensive health education and human services programs include a pre-kindergarten through 12th grade health education curriculum that is integrated with other disciplines, a reorganization of guidance and counseling to focus upon the social and emotional development of students, partnerships with families and community agencies to increase services and support provided to students, and expanded health services. Successful school restructuring programs enhance student health and success by creating a supportive and caring school climate, by promoting positive interpersonal relationships, and by generating systemic change in school governance, curriculum, and instruction.

The 1993 Youth Risk Behavior Survey, planning for which is now underway, will provide the first truly state-wide representative sample of high school students. The 1993 survey will allow confirmation of the patterns and trends suggested by the current findings, and will allow us to begin exploring the degree to which comprehensive health education and human services programs and school restructuring are having a positive effect on adolescent health risk behavior.

APPENDIX: Youth Risk Behavior Survey Background Information

The Youth Risk Behavior Survey (YRBS) provides one of the most comprehensive sources of information on the health risk behaviors of high school students in Massachusetts. The survey is used to collect information on six health areas related to the leading causes of morbidity, mortality and social problems among youth and adults in the United States. These include: sexual behaviors that result in HIV infection, other sexually transmitted diseases, and unintended pregnancies; alcohol and other drug use; behaviors that result in intentional and unintentional injuries; tobacco use; dietary behaviors; and physical activity.

The Youth Risk Behavior Survey is conducted periodically by the Massachusetts Department of Education as part of a nation-wide effort to monitor the prevalence of youth behaviors that most influence health. It is designed to focus state and local efforts on those health risk behaviors that are established during youth and to monitor progress in fostering change in these behaviors over time.

The 1992 survey was conducted in randomly selected public high schools across the state. Private and parochial schools, alternative high schools with enrollment under 100, and schools in the Boston Public School system were excluded from the sample. Of the 61 schools randomly selected, 39 (63%) agreed to participate. These include public high schools in four of the nine largest cities in the state, schools in urban communities in the Greater Boston area, schools in smaller towns, and schools in suburban and rural areas. While the sample represents students in a variety of community types, it may not be perfectly representative of all students in the state since students attending schools in the two largest Massachusetts cities, Boston and Worcester, did not participate.

The survey was conducted by members of the Department of Education's Bureau of Student Development and Health between April and June of 1992. Within participating schools, classrooms were randomly selected such that each student attending that school would have an equal probability of being in a selected class. The survey instrument consisted of the 75 standard, multiple choice questions provided by the Centers for Disease Control. The survey was written in English and took approximately one class period to complete. Because of the possible lower participation rate of non-English-speaking students, plans are underway to conduct the 1993 YRBS in Spanish as well.

Student participation in the survey was both voluntary and anonymous. On the scheduled survey days, 79 percent of students in selected classrooms completed the self-administered questionnaire, yielding a total of 1970 usable

questionnaires. This number reflects approximately one percent of all students attending high school outside of Boston in 1992.

Statistical weighting allows behavioral data from a sample of students to be extrapolated to the student population as a whole. The 1992 survey results, however, were *not* be weighted due to a lower than expected overall response rate. The overall response rate of 50 percent (63% of schools X 79% of students) is below the 60 percent level required for weighting. This lower overall response rate resulted primarily from a lower than expected school participation rate; the student participation rate was within the expected range.

Because the data are not weighted, the results reflect the behavior of only those students who participated. However, because of the striking consistency of the 1992 results with the 1990 weighted results in most behavior areas, there is reason to be confident that the current findings do provide an accurate approximation of the priority health-risk behaviors of high school students in Massachusetts.

The sample includes approximately equal percentages of students in each grade level, and equal parts adolescent women and men. Almost 90 percent of the respondents were white, with the remainder including Hispanic, black, and "other" students. "Other" students include Asian Americans, Pacific Islanders, Native Americans, Alaska Natives, and students from other racial/ethnic groups who either numbered less than 25 in the sample or for whom no category was provided on the standardized Centers for Disease Control instrument. The ethnic/racial distribution of the 1992 sample somewhat underestimates the true diversity that exists in the Massachusetts high school population, due to the underrepresentation of the two largest cities in the sample. Because of the small numbers of non-white students, the results presented in this report are not disaggregated by racial/ethnic category. The large and relatively equal numbers of women and men, and of students in the four major high school grades make it possible to disaggregate the results by grade and/or gender where those distinctions appear relevant.

As mentioned above, a survey similar to the 1992 Youth Risk Behavior Survey was conducted in Massachusetts in 1990. The weighted results of the 1990 survey have been reported elsewhere.⁷⁷ While statistical comparisons can not be made between the two time periods due to differences in sample characteristics, several large disparities in findings suggest that significant changes in behavior may have taken place between 1990 and 1992. Assessing the true magnitude of these changes awaits the completion of the next state-wide survey in 1993. This report also compares the current Massachusetts results to the 1990 and 1991 national Youth Risk Behavior Survey results. The statistical significance of any differences is not assessed in this report.

REFERENCES AND NOTES

1. Massachusetts Department of Education, 1990 Youth Risk Behavior Survey Results, Quincy, MA: Bureau of Student Development and Health, 1991, and unpublished results.
2. Massachusetts Department of Education, 1991, op. cit. (see reference 1).
3. "Other" students include Asian Americans, Pacific Islanders, Native Americans, Alaska Natives, and other students from groups which either numbered less than 25 in the sample or for whom no category was provided on the standardized survey instrument. Unpublished state level data from Department of Education's Office of Planning, Research, and Evaluation.
4. Hofferth, S.L., and Hayes, C.D. (eds.). Risking the Future: Adolescent Sexuality, Pregnancy, and Childbearing, Panel on Adolescent Pregnancy and Childbearing, Committee on Child Development Research and Public Policy, Commission on Behavioral and Social Sciences and Education, National Research Council. Washington, DC: National Academy Press, 1987.
5. Westoff, C.F., Contraceptive paths toward reduction of unintended pregnancy and abortion. Family Planning Perspectives 20(1): 413, 1988.
6. Furstenberg, F.F., Jr., Brooks-Gunn, J., and Chase-Lansdale, L., Teenaged pregnancy and childbearing. American Psychologist 44(2):313-320, 1989.
7. Hofferth, S.L., and Hayes, C.D. (eds.), 1987, op. cit. (see reference 4).
8. U.S. Department of Health and Human Services. Prevention '89/'90: Federal Programs and Progress. Washington, DC: U.S. Government Printing Office, 1990.
9. Centers for Disease Control. Years of potential life lost before age 65: United States, 1987. Morbidity and Mortality Weekly Report 38:27-29, 1989.
10. National Center for Health Statistics. Advance report of final mortality statistics, 1987. Monthly Vital Statistics Report 38(5) Supplement. Hyattsville, MD: Public Health Service, 1989.
11. Division of Sexually Transmitted Diseases. Annual Report, 1989. Center for Prevention Services, Centers for Disease Control, U.S. Public Health Service, 1990.
12. U.S. Department of Health and Human Services, 1990, op. cit. (see reference 8).
13. Centers for Disease Control, Condoms for the prevention of sexually transmitted diseases, Morbidity and Mortality Weekly Report 37(9):133, 1988.
14. U. S. Department of Health and Human Services, Healthy People: National Health Promotion and Disease Prevention Objectives. Public Health Service, Conference Edition, September 1990.
15. "Sexual intercourse" is not defined on the survey instrument; students determined for themselves what this term meant.
16. Centers for Disease Control. Sexual Behavior Among High School Students - United States, 1990. Morbidity and Mortality Weekly Report. 40:885-888.

17. Massachusetts Department of Education, 1991, op. cit. (see reference 1).
18. Hingson, R.; and Strunin, L. Beliefs about AIDS, use of alcohol and drugs, and unprotected sex among Massachusetts adolescents. American Journal of Public Health 80(3):295-299.
19. Centers for Disease Control. Tobacco, Alcohol, and Other Drug Use Among High School Students - United States, 1991. Morbidity and Mortality Weekly Report 41:698-703, 1992.
20. Perrine, M.,; Peck, R.; and Fell, J. Epidemiologic perspective on drunk driving. In: Surgeon General's Workshop on Drunk Driving: Background Papers. Washington, DC: U.S. Department of Health and Human Services, 1988.
21. U.S. Department of Health and Human Services, 1990, op. cit. (see reference 8).
22. Dryfoos, J.G. Working Paper on Youth at Risk: One in Four in Jeopardy. Hastings on the Hudson, New York: Report submitted to the Carnegie Corporation, 1987.
23. U.S. Department of Health and Human Services, 1990, op. cit. (see reference 8).
24. U.S. Department of Health and Human Services, 1990, op. cit. (see reference 14).
25. Dryfoos, J.G., 1987, op. cit. (see reference 22).
26. Johnston, L.D.; O'Malley, P.M.; and Bachman, J.G. Drug Use, Drinking, and Smoking: National Survey Results from High School, College, and Young Adult Populations, 1975-1988. DHHS Pub. No. (ADM)89-1638. Rockville, MD: National Institute on Drug Abuse, 1989.
27. U.S. Department of Health and Human Services, 1990, op. cit. (see reference 14).
28. "Alcohol use" as defined in the survey instrument excludes the consumption of a few sips of wine for religious purposes.
29. Centers for Disease Control, 1992, op. cit. (see reference 19).
30. U.S. Department of Health and Human Services, 1990, op. cit. (see reference 14).
31. Centers for Disease Control, 1992, op. cit. (see reference 19).
32. Massachusetts Department of Public Health. Injuries in Massachusetts: A Data Source Book. Statewide Comprehensive Injury Prevention Program, Bureau of Parent, Child, and Adolescent Health, June 1990.
33. U.S. Department of Health and Human Services, 1990, op. cit. (see reference 14).
34. National Center for Health Statistics. Prevention profile. Health, United States, 1989. DHHS Pub. No. (PHS) 90-1232. Hyattsville, MD: U.S. Department of Health and Human Services, 1990.
35. U.S. Department of Health and Human Services, 1990, op. cit. (see reference 8).

36. Alcohol, Drug Abuse, and Mental Health Administration. Report of the Secretary's Task Force on Youth Suicide, Volume 2: Risk Factors for Youth Suicide. L. Davidson and M. Linnoila, eds. Public Health Service. DHHS Pub. No. (ADM) 89-1622. Washington, DC: U.S. Govt. Print. Off., 1989.
37. Centers for Disease Control. Behaviors related to unintentional and intentional injuries among high school students - United States 1991. Morbidity and Mortality Weekly Report, October 16, 1992.
38. Massachusetts Department of Public Health, 1990, op. cit. (see reference 32).
39. National Center for Health Statistics. Health United States, 1989, DHHS Pub. No. (PHS) 90-1232. Hyattsville, MD: U.S. Department of Health and Human Services, 1990.
40. Division of Sexually Transmitted Diseases, 1990, op. cit. (see reference 11).
41. Centers for Disease Control, 1992, op. cit. (see reference 37).
42. U.S. Department of Health and Human Services, 1990, op. cit. (see reference 8).
43. Rivara, F.P. Traumatic deaths of children in the United States: Currently available prevention strategies. Pediatrics, 75(3):456-62, 1985.
44. U.S. Department of Health and Human Services, 1990, op. cit. (see reference 8).
45. Centers for Disease Control, 1992, op. cit. (see reference 37).
46. U.S. Department of Health and Human Services, 1990, op. cit. (see reference 8).
47. National Highway Traffic Administration. Fatal Accident Reporting System, 1987. Washington, DC: Department of Transportation, 1988.
48. Massachusetts Department of Public Health, 1990, op. cit. (see reference 32).
49. National Highway Traffic Safety Administration. The Economic Cost to Society of Motor Vehicle Accidents, Technical Report DOT HS 809-195. Washington, DC: U.S. Department of Transportation, 1987.
50. Massachusetts Department of Education, 1991, op. cit. (see reference 1).
51. National Committee for Injury Prevention and Control. Injury Prevention: Meeting the Challenge. Supplement to American Journal of Preventive Medicine, 5(3), 1989.
52. National Highway Traffic Safety Administration. A Report to the Congress on the Effect of Motorcycle Helmet Use Law Repeal: A Case for Helmet Use, Washington, DC: Department of Transportation, 1980.
53. Thompson, R.S.; Rivara, F.P.O.; and Thompson, D.C. A case-control study of the effectiveness of bicycle safety helmets. New England Journal of Medicine, 320(21):1364-1366, 1989.

54. Massachusetts Department of Education, 1991, op. cit. (see reference 1).
55. Gulaid, J.A., and Sattin, R.W. Drownings in the United States, 1978-1984. Morbidity and Mortality Weekly Report 37(SS-1):27-33, 1988.
56. Office on Smoking and Health. Reducing the Health Consequences of Smoking: 25 Years of Progress. A Report of the Surgeon General. DHHS Pub. No. (CDC) 89-8411. Washington, DC: U.S. Department of Health and Human Services, 1989.
57. Johnston, L.D.; O'Malley, P.M.; and Bachman, J.G. National Trends in Drug Use and Related Factors Among American High School Students and Young Adults, 1975-1986. DHHS Pub. No. (ADM) 87-1535. Rockville, MD: National Institute on Drug Abuse, 1987.
58. U.S. Department of Health and Human Services, 1990, op. cit. (see reference 8).
59. U.S. Department of Health and Human Services, 1990, op. cit. (see reference 14).
60. Centers for Disease Control, 1992, op. cit. (see reference 19).
61. Centers for Disease Control. Selected tobacco use behaviors and dietary patterns among high school students - United States 1991. Morbidity and Mortality Weekly Report 41(24):417-421, 1992.
62. Gortmaker, S.L.; Dietz, W.H.; Sobol, A.M.; and Wehler, C.A. Increasing pediatric obesity in the United States. American Journal of Diseases of Children, 141:535-540, 1987.
63. Public Health Service. The Surgeon General's Report on Nutrition and Health. DHHS Pub. No. (PHS) 88-50210. Washington, DC: U.S. Department of Health and Human Services, 1988.
64. Rotatori, A.F.; and Fox, R.A. Obesity in Children and Youth: Measurement, Characteristics, Causes, and Treatment. Springfield, IL: Charles C. Thomas, Publisher, 1989.
65. Public Health Service, 1988, op. cit. (see reference 62).
66. Select Panel for the Promotion of Child Health. Report to the United States Conference and the Secretary of Health and Human Services, Vol.I, Major findings and recommendations; Vol IV. Background papers. DHHS Pub. No. (PHS) 79-55071. Washington, DC: U.S. Government Printing Office, 1981.
67. U.S. Department of Agriculture. The Food Guide Pyramid...Beyond the Basic 4. Human Nutrition Information Service, Washington DC: Supt. of Documents, 1992.
68. Plummer, P.F. 1991 Assessment of Nutrition Knowledge, Attitudes, and Behaviors of Massachusetts Adolescents. Framingham, MA: Framingham State College, Stalker Institute of Food and Nutrition.
69. U.S. Department of Health and Human Services, 1990, op. cit. (see reference 14).
70. Massachusetts Department of Education, 1991, op. cit. (see reference 1).

71. Paffenbarger, R.S.; Hyde, R.T.; Wing, A.L.; and Hsieh, C.C. Physical activity, all cause mortality, and longevity of college alumni. New England Journal of Medicine, 314:605-613, 1986.
72. Harris, S.S.; Caspersen, C.J.; DeFries, G.H.; and Estes, E.H. Physical activity counseling for healthy adults as a primary prevention intervention in the clinical setting. Journal of the American Medical Association, 261: 3590-3598, 1989.
73. U.S. Department of Health and Human Services. National children and youth fitness study. Journal of Physical Education, Recreation, and Dance, 56:44-90, 1985.
74. U.S. Department of Health and Human Services. National children and youth fitness study II. Journal of Physical Education, Recreation, and Dance, 58:50-96, 1987.
75. U.S. Department of Health and Human Services, 1990, op. cit. (see reference 14).
76. Massachusetts Department of Education. Physical Education Laws and Regulations, Guidelines for Adapted Physical Education, Chapter 622 and Title IX as They Relate to Physical Education and Athletics, 1982; and Massachusetts Department of Education 622 Regulations.
77. Massachusetts Department of Education, 1991, op. cit. (see reference 1).

